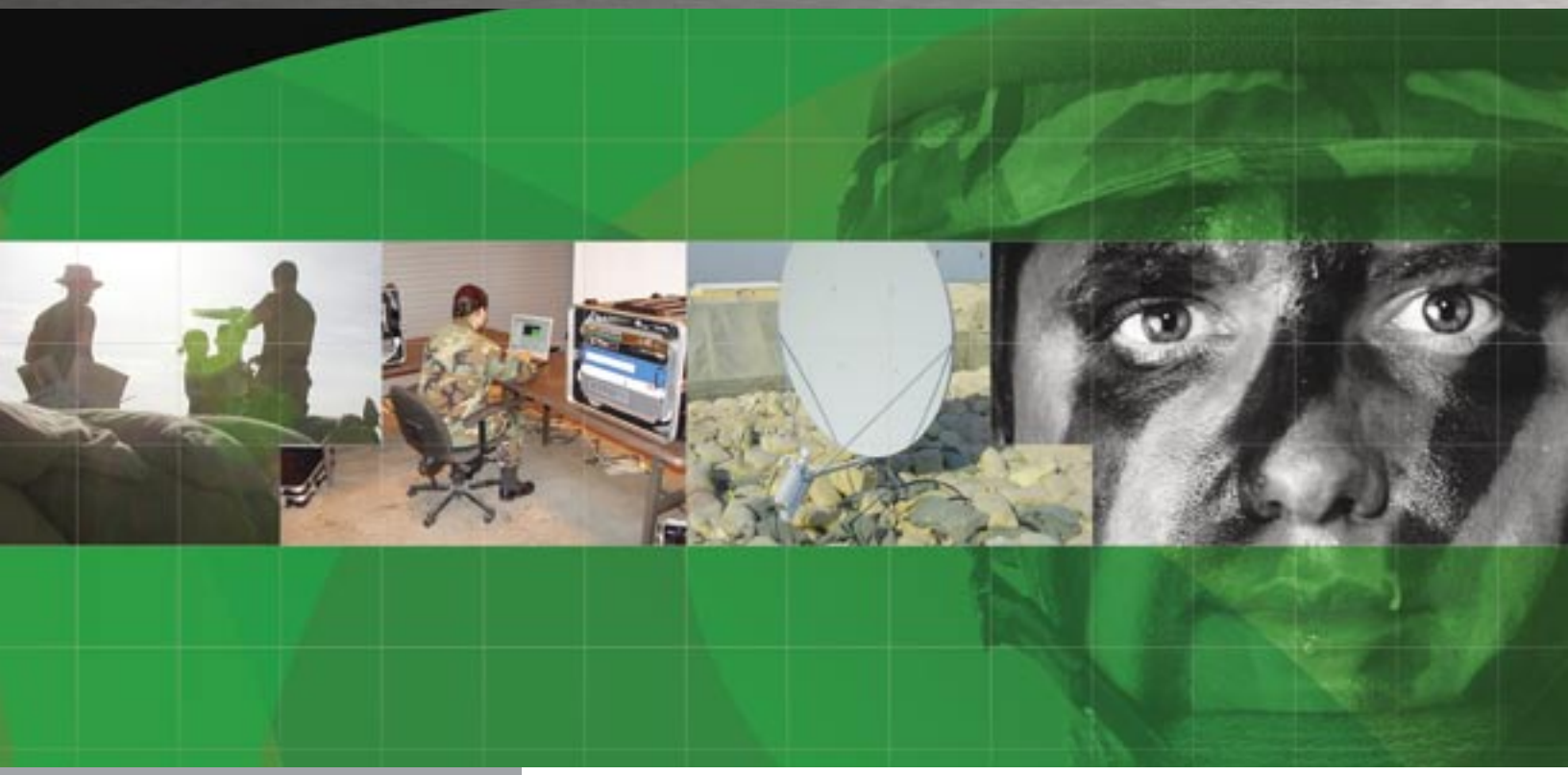
Army Space Support Team – Tactical Set (Dismounted)



Summary

The ARSST-TS (D) provides the space Soldier with unprecedented global wideband commercial satellite communications along with space analysis, space situational awareness, and space products to the warfighter.

- Suite of Equipment Consists of Space Operations Systems (SOS) and Space Applications Technology Utility Reachback Node (SATURN)
- Space Analysis and Battlespace Situational Awareness
- Imagery Toolset to include 2D/3D Visualization and Simulations
- Encryption for voice and data
- Global Reachback Capability and Triple Redundancy Global Commercial Satellite
- Secure Voice and Data
- Rapidly and Easily Deployable

The ARSST-TS (D) is designed as an easily deployable and globally capable tool-set to support Army Joint Space Operations. The system provides global "reachback" broadband communication that supports forward deployed space Soldiers, who provide space services (e.g. analysis, estimate, IPB etc.) and products (e.g. commercial and spectral imagery) to support operational and tactical commanders.

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ARSST-TS (D) Introduction

The ARSST development evolved over eight years of experimentation and employment in exercises, in operations other than war, and in war. ARSST-TS employment during Operation Enduring Freedom and Operation Iraqi Freedom clearly demonstrated that the space-based products provided by ARSST equipped teams markedly enhanced command and control and situational awareness for land force commanders. To expand on these achievements, the Space and Missile Defense Battle Lab (SMDBL) created a suite of equipment that includes the Space Operations System (SOS) and the communications capabilities of the Space Applications Technology Utility Reachback Node (SATURN). The ARSST-TS (D), formally known as the Space Support Element Toolset-Light (SSET-L), is comprised of two SOS systems, an SOS imagery system (SOSi), and a SATURN. The ARSST-TS (D) integrates Commercial-off-the-Shelf (COTS) components allowing for rapid acquisition, product tailoring, and the integration of emerging technologies. Systems were successfully deployed in a variety of military, humanitarian, and disaster relief efforts.

ARSST-TS (D) System Overview

- Space Operations System (3)
  Space analysis, space situational awareness, SOSi imagery
- Internet Protocol Satellite (IPSAT) Communications
  Global wideband commercial SATCOM
  1MB Downlink/256kb Uplink (scaleable), Ku Band
  Either 1.2 or 1.8M (depends on destination of user)
- INMARSAT
  64kb L Band
  Secure backup communications (voice/data)
- Iridium MT9505 with secure sleeve
  Secure backup communications (voice)
- Man Machine Interface (MMI)
  Diagnostic and maintenance for communications equipment
  World Wide Web access
- Encryption
  Inline Network Encryption Device
- Uninterruptible Power Supply
- Voice through IP Capability (secure and non-secure)

Description

The ARSST-TS (D) provides connectivity between the Space and Missile Defense Command Operations Center (SMDCOC) and remote sites with a triple redundant space-based communications suite that utilizes IPSAT, International Maritime Satellite (INMARSAT), and Iridium services. The IPSAT capability is made possible through the use of an iDirect NetModem. The IPSAT capability is the backbone of the ARSST-TS (D)'s broadband communications. It operates in the Ku frequency band, providing up to 9Mbps downlink to the remote earth terminal and up to 4Mbps uplink capability. Rates depend upon factors such as the geographical location of the terminal, antenna size, and service provider. The data stream is encrypted by an Inline Network Encryption (INE) device.

The Motorola 9505 Satellite Phone provides initial voice communications capability. The Iridium Secure Module (ISM) is included with the phone providing secure voice communications. Upon SATURN employment, the voice through IP capability becomes the primary means of voice communications. The V-100 multiplexer in conjunction with the IP Tube (tunneling through the IPSAT) makes this possible. This system gives deployed users reachback connectivity to the home station's phone switch for DSN capability. The connection can be secured using a STE or STU device.

The SOS is a portable computer system designed for space analysis and situational awareness. The SOS is also capable of imagery production (ex. Fly-through, 3D perspectives, 2D images etc.) and limited imagery analysis. The suite of space applications installed on the SOS enable the ARSSTs to provide expertise in the areas of Intelligence, Surveillance and Reconnaissance (ISR), Early Warning (EW), Satellite Communications (SATCOM), Weather, Terrain and Environmental Monitoring (WTEM), and Position, Navigation, Velocity Timing (PNVT). Applications run on a WINTEL operating system for ease of use and training and are accredited to operate in unclassified and classified environments. The user is provided with classified and unclassified drives and can connect to NIPRNET/SIPRNET or work in a standalone mode.

Benefit to the Warfighter

The capabilities of teams utilizing the ARSST-TS to provide these commanders with extremely valuable space-based products has been demonstrated repeatedly during employments in operations other than war, humanitarian assistance, disaster relief, Operation Enduring Freedom, Operation Iraqi Freedom, and other contingencies.

System Features Include:

- 100 percent COTS system
- Rapid and easily deployable
- Global "reachback" communications capabilities
- "One-stop" support center for deployed space forces
- Provides triple redundancy for the user
- Portable computer system designed for space analysis
- Each system deploys with organic satellite installation kit
- Five-tier support system
- Deployed with basic repair parts

Demonstrations

- October 2004, AUSA Symposium in Washington, D.C.
- December 2004, AUSA Symposium in El Paso, Texas
- April 2005, Space Symposium in Colorado Springs, Colo.

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